Timika Shafeek-Horton
Deputy General Counsel

Duke Energy Corporation
550 South Tryon Street
Charlotte, NC 28202

Mailing Address:
DEC45A / P.O. Box 1321
Charlotte, NC 28201

o: 704-382-6373
f: 980.373.8534
Timika.Shafeek-Horton@duke-energy.com

March 12, 2014

VIA ELECTRONIC FILING

Jocelyn G. Boyd
Chief Clerk / Administrator
Public Service Commission of South Carolina
101 Executive Center Drive, Suite 100
Columbia, South Carolina 29211

RE: **Duke Energy Carolinas, LLC and Duke Energy Progress, Inc.'s Response to Comments by Southern Alliance for Clean Energy, Coastal Conservation League, and Upstate Forever on 2013 Integrated Resource Plan**
PSC Docket Nos. 2013-10-E and 2013-8-E

Dear Mrs. Boyd:

Enclosed please find Duke Energy Carolinas, LLC and Duke Energy Progress, Inc.'s Response to Comments by Southern Alliance for Clean Energy, Coastal Conservation League, and Upstate Forever in the above referenced dockets.

Please contact me if you have any questions.

Sincerely,

Timika Shafeek-Horton
Deputy General Counsel

TSH/bml

cc: Shannon B. Hudson, ORS
Jeffrey M. Nelson, ORS
John W. Flitter, ORS
Parties of Record

STATE OF SOUTH CAROLINA

BEFORE THE PUBLIC SERVICE COMMISSION

DOCKET NO. 2013-8-E
DOCKET NO. 2013-10-E

In the Matter of: Duke Energy Carolinas, LLC's Integrated Resource Plan (IRP) In the Matter of: Duke Energy Progress, Inc.'s Integrated Resource Plan (IRP)	)	**RESPONSE TO COMMENTS BY SOUTHERN ALLIANCE FOR CLEAN ENERGY, COASTAL CONSERVATION LEAGUE, AND UPSTATE FOREVER ON 2013 INTEGRATED RESOURCE PLAN**

Southern Alliance for Clean Energy, Coastal Conservation League, and Upstate Forever (collectively referred to as "Intervenors") have provided comments and opinions in the above referenced docket regarding Duke Energy Carolinas, LLC ("DEC" or "Duke Energy Carolinas") and Duke Energy Progress, Inc.'s ("DEP" or "Duke Energy Progress") Integrated Resource Plan ("IRP"). DEC's and DEP's response follows.

INTRODUCTION

Intervenors described what they contended were the key shortcomings of the IRP and made recommendations for IRP improvements. DEC and DEP will address these items grouping related "shortcomings" and recommendations as appropriate. DEC and DEP have not attempted to address every item raised by Intervenors as many of the concerns raised are not new and have been reviewed previously by this Commission.

COMMENTS

First, Intervenors say DEC and DEP are planning to build too much capacity, while underinvesting in resources that would reduce system costs for all customers. Relatedly, Intervenors say DEC and DEP should each conduct, and explicitly address in their IRPs, a

rigorous evaluation of the economics of continuing to operate scrubbed coal units, and that each company should conduct a more complete evaluation of the risks of construction delays and cost increases associated with new nuclear generation. In addition, Intervenors recommend that DEC eliminate the requirement of backstand reserves for demand response to reduce its reserve margin.

The 2013 IRPs for DEC and DEP were developed with a focus on joint dispatch. The 2013 IRPs represented the first time IRPs were developed for the merged company, and the focus was on consistency of data, best practices, alignment of methodologies, and process improvement. As processes were aligned, joint dispatch (sharing of energy) was the primary focus of the 2013 IRP. Joint dispatch was incorporated into all scenarios developed for the 2013 IRPs. The Company also developed an Environmental Focus scenario to examine the impacts of additional renewable energy resources and increased energy efficiency to the systems. A third scenario was developed which explored the benefits of joint capacity planning between DEC and DEP. It was confirmed that joint capacity planning would benefit both Utilities' customers by sharing capacity and delaying the addition of future generating resources to meet demand growth.

With respect to continuing to operate scrubbed coal units, DEC and DEP continue to monitor the status of legislation and policy that could impact costs associated with these units. Given the current uncertainty, it would have been imprudent to include large capital costs for compliance or the retirements of additional coal units in the 2013 IRP. With respect to new nuclear costs, the IRP demonstrates that nuclear resources continue to be a viable and economic future generation option in a carbon-constrained future. The Company frequently evaluates and updates its nuclear construction cost projections for the WS Lee nuclear facility. The costs utilized in the 2013 IRP are reasonable and conservative and take reasonable risk of construction delays into account. In

comparison to the VC Summer construction costs, including the recent cost increase, the Lee nuclear facility cost projections are approximately 7-8% higher than the VC Summer costs. The Company believes these nuclear costs are reasonable and represent an appropriate amount of risk for construction delays and increases in costs.

Intervenors have mischaracterized the North American Electric Reliability Corporation ("NERC") Guidelines in making their argument that backstand requirements should be eliminated. They also mistakenly assume how the treatment of demand side management ("DSM") programs (also referred to as demand response programs) would impact the calculation of reserve margin. As explained below, treating DSM programs as an offset to load versus as a resource does not result in excess reserves.

Duke Energy Carolinas' treatment of demand response programs in the calculation of reserve margin is a reasonable and appropriate method of treating these programs. Intervenors contend Duke Energy Carolinas' treatment of demand response as a resource is contrary to NERC definitions and guidance (Intervenor comments at page 70). The NERC document cited by Intervenors (NERC Reliability Assessment Guidebook V3.1) does NOT find the treatment of DSM as a resource a violation of NERC guidance. In fact, the cited document notes that "DSM resources can be modeled in a variety of ways, all of which are appropriate" (NERC Reliability Assessment Guidebook 3.1, August 2012, p. 18.) In addition, in NERC's 2012 Long Term Reliability Assessment, NERC's definition for demand response includes the statement that demand response can be counted in resource adequacy studies either as a load modifier or as a resource (NERC 2012 Long-Term Reliability Assessment, November 2012, Appendix VII, p. 319).

At issue is whether demand response programs such as "Power Manager" and "Power Share" are treated as a resource or an offset to load. Duke Energy Carolinas and Duke Energy Progress have historically treated demand response differently in their calculation of reserve margin. Duke Energy Carolinas has treated the programs as resources similar to a generating unit; Duke Energy Progress has treated the programs as offset to load. As the NERC Guidelines suggest, either is appropriate. Upon the merger of Duke Energy Corporation and Progress Energy Carolinas, Inc. (the "Company"), the Integrated Resource Planning and Analytics group considered both options and chose to treat the programs as resources rather than as a load reduction. The basis for this decision stems from how these programs are treated in system operations. The system dispatchers and grid managers know that when they call on these programs, the response is similar to the response of a combustion turbine unit. In addition, while the Company seeks to ensure the programs are available when called upon, like a generating unit, they are not 100% responsive. This is in contrast to energy efficiency ("EE") programs, such as installation of high efficiency lighting, motors, and heating, ventilation, and air conditioning equipment, that are appropriately treated as a reduction to load. Once an EE measure is installed, the customers' electricity usage is reduced.

Intervenors appear to believe the Company would keep the same target reserve margin with the change in methodology. This is an incorrect assumption. If Duke Energy Carolinas adopts the methodology to treat DSM as a reduction to load, the Company will be required to raise its reserve margin to maintain the same level of reliability. Target reserve margins are developed to achieve a specific level of reliability, typically expressed in a loss of load expectation ("LOLE") of one day in ten years. This LOLE level is the constant, irrespective of whether DSM is treated as a resource or as a load reduction. Below are results from the

Company's most recent reserve margin study, conducted by Astrape Consulting in 2012. As shown in the table, Astrape Consulting proposed a minimum target reserve margin of 14.5% if demand response is treated as a resource and 15.25% if treated as a reduction to load. For the reasons discussed above, the Company chose to treat DSM as a resource and utilized the 14.5% Reserve Margin. If the Company adopts the methodology to treat demand response as a load reduction, using the 15.25% minimum target planning reserve margin would be appropriate.

RM with DR as a resource	***Physical***
Company	LOLE: 1 day in 10 Yr
DEC	14.50%

RM with DR removed from load	***Physical***
Company	LOLE: 1 day in 10 Yr
DEC	15.25%

The table below shows the level of resources needed to meet the minimum target reserve margin for Duke Energy Carolinas in 2017. The table demonstrates that there is virtually no difference (25 MWs on an almost 20,000 MW load) in the level of resources needed regardless of the way demand response is treated.

	DSM as a Resource	DSM as a Reduction to Load
System Peak, Net of EE	19,445	19,445
Cumulative DSM		1,118

System Peak, Net of EE & DSM		18,327
Minimum Required Reserves (%)	14.5%	15.25%
Minimum Required Reserves	2,820	2,795

In conclusion, Intervenors' claim that Duke Energy Carolinas' treatment of demand response as a resource has resulted in excess reserves is in error. Duke Energy Carolinas has properly calculated its reserve margin and the values presented in its IRP in this docket are correct.

Second, Intervenors allege DEC and DEP are not planning to capture all cost-effective energy efficiency. Relatedly, Intervenors say DEC and DEP should include higher levels of energy efficiency in their preferred "Base Case" plans, on par with those of leading utilities, and should evaluate energy efficiency as a resource that competes on its own merits with supply-side resources.

The concept of "all cost-effective energy efficiency" fails to take into account the critical component of customer behavior as it relates to achieving EE Impacts. DEC and DEP consider the Achievable Potential (also known as Market Potential) of EE adoption when developing their plans. Achievable potential takes into consideration the expected rate of adoption of EE measures by customers as opposed to assuming that 100% of the customers install all cost-effective energy efficiency measures. In order to develop an independent estimate of the Achievable Potential in the DEC and DEP territories, DEC and DEP commissioned Market Potential Studies performed by Forefront Economics and completed in early 2012. The Base Cases for both DEC and DEP are based on the Market Potential Studies provided by Forefront

Economics and appropriately account for expected customer adoption of EE programs. The Environmental Focus Case for DEC assumed DEC would achieve EE reductions by 2028 that are nearly twice as high as the Achievable Potential value provided by Forefront Economics and nearly 50% higher than the Base Case provided by DEC in the IRP. The same significantly higher cumulative achievements were assumed for the DEP Environmental Focus Case.

The statement by Intervenors that much higher levels of EE are "still achievable" conflicts with the independent report that takes into consideration customer adoption rates. Intervenors' contention should not be considered a matter of fact, but rather an opinion that all customers will adopt all cost effective EE measures. This customer behavior has not been proven in any studies known to the Companies. Further, on page 39 of their comments, Intervenors state that "utilities in leading states" are saving from 1.5 – 2% of their sales each year. The states listed as examples of this level of achievement are Vermont, Massachusetts, and California, states that have some of the highest electricity prices in the United States according to the Energy Information Administration ("EIA") website (http://www.eia.gov/electricity/state/). Retail electricity prices in these three states average approximately $0.135/KWh compared to approximately $0.085/KWh in South Carolina, as published by the EIA. It is reasonable to assume that states with high power prices will also have greater acceptance of energy efficiency measures because the payback period for the initial investment in more efficient equipment by the consumer is much shorter due to higher bill savings.

Third, Intervenors allege DEC and DEP do not plan to maximize cost-effective renewable energy opportunities that reduce risks to customers from rising fuel costs and anticipated regulatory requirements. Relatedly, Intervenors say the companies should explicitly

recognize and incorporate the benefits that renewable energy resources provide in addition to capacity and energy and increase reliance on renewable energy resources in its plan.

Combined 2013 IRPs for DEC and DEP include over 2,800MW of renewable resources by the end of 2028, as a part of a balanced portfolio. Intervenors assert renewables offer a lower risk of cost increases compared to gas generation based on fuel and environmental cost risk, capital cost risk, risk of scheduling inflexibility, and risk of implementation failures. Most of these risks do not decrease for renewable resources. Fuel and environmental costs associated with each type of resource are modeled in the IRP and each resource bears the associated fuel and environmental cost as part of the economic selection process within the IRP. Capital cost risk does not decrease for solar, a fact Intervenors acknowledge. In fact, given that a majority of modules and balance of system equipment are manufactured in China, capital cost uncertainty is subject to normal supply and demand fluctuations in addition to foreign exchange risk when projected for future years. Intervenors contend the scalability of solar reduces the risk of scheduling inflexibility, i.e. shorter construction lead times and smaller plant size may allow a utility to match load growth to generation build. However, overreliance on this one particular resource has not proven to be the reliable least cost option, and to an extent defies the principles of long-term generation planning. In addition to cost, risk of implementation failure exists for renewable resources as much as for any conventional generation source. Third party developers do not have an obligation to serve as is the case with the regulated utility. It is the companies' experience that renewable projects are cancelled at various stages in the project life, introducing great uncertainty into the planning process.

As part of the Intervenors' recommendation that the Company explicitly recognize and incorporate renewable resource benefits, in addition to capacity and energy, the Intervenors

request recognition of distributed generation ("DG") in utility plans. DG is recognized in the Utilities' plans; it is captured as a net load reduction when it is behind the meter or as a non-utility generator or renewable resource if directly tied to the grid. In addition, utilities will incorporate applicable findings from the solar integration study currently being completed in future utility plans. Finally, Intervenors also ask the utilities to support research and development into offshore wind. The Company is actively involved in multiple offshore wind efforts currently. The Company is the Department of Energy project sponsor for the Carolinas Offshore Wind Integration Case Study and is a participant of the National Offshore Wind Energy Grid Interconnection Study as well.

Fourth, Intervenors argue that the companies' modeling of the "Environmental Focus Scenarios" has flaws that significantly overstate costs and prevent a fair "apples-to-apples" comparison with selected, "Base Case" plans. The Company acknowledges an error was made in the production cost modeling when incorporating the additional renewable resources associated with the Environmental Focus Scenario. The contribution to peak capacity of the additional wind and solar resources were input into the production cost model in lieu of the nameplate capacity which underestimated the energy value in the Present Value of Revenue Requirement ("PVRR") comparison. The Company has corrected this error and the impact is shown in the table below:

Delta Between Environmental Focus Scenario and Reference Scenario (PVRR 2013-2028)

DEC	DEP	Total
$1.3 Billion	$0.1 Billion	$1.40 Billion

The cost for the Environmental Focus case remains $1.4 billion higher than the cost for the Reference case through 2028. This comparison is not intended for the selection of one portfolio over the other. Instead, the comparison illustrates the total PVRR differences customers would see between the two scenarios given all the differences in assumptions.

Notwithstanding the aforementioned, in Table 3: titled, "Customer Cost Saving from Environmental Focus Scenario" on page 19 of Intervenors' comments, Intervenors incorrectly adjust for Carbon dioxide ("CO2") and EE in the comparison of the Environmental Focus Scenario and the Reference Scenario. The Environmental Focus Scenario has higher CO2 prices and lower fuel prices. The higher CO2 prices which would lead to a greater amount of EE and renewable resources would tend to push down demand (and price) of traditional fuels. Therefore, adjusting CO2 prices without making the corresponding adjustment to fuel prices is an invalid comparison. In their calculations, Intervenors fail to adjust for the fuel price benefit received in the Environmental Focus case and focus only on the CO2 price difference. Finally, Intervenors appear to assume that achieving ever higher levels of EE can be accomplished without an increase in the cost per MW to achieve these higher levels. This is simply not the case as the most cost-effective EE is assumed already to have been implemented.

CONCLUSION

DEC and DEP have reviewed and evaluated Intervenors' contentions with respect to their 2013 IRPs. With the exception of the error regarding the contribution to peak capacity of additional wind and solar resources in the Environmental Focus Scenario, which has been corrected, DEC and DEP disagree with those contentions. The 2013 IRPs outline a robust strategy for providing electric energy services to their customers in a reliable, efficient, and economic manner while factoring in the uncertainty in the current environment.

Respectfully submitted,

Timika Shafeek-Horton
Deputy General Counsel
Duke Energy Carolinas, LLC
550 South Tryon Street, DEC-45A
Charlotte, North Carolina 28202
Tel: 704.382.6373
timika.shafeek-horton@duke-energy.com

STATE OF SOUTH CAROLINA

BEFORE THE PUBLIC SERVICE COMMISSION

DOCKET NO. 2013-8-E
DOCKET NO. 2013-10-E

In the Matter of: Duke Energy Carolinas, LLC's Integrated Resource Plan (IRP) In the Matter of: Duke Energy Progress, Inc.'s Integrated Resource Plan (IRP)	)	**CERTIFICATE OF SERVICE**

This is to certify that I have caused to be served this the 12th day of March, 2014, one copy of Duke Energy Carolinas, LLC's **RESPONSE TO COMMENTS BY SOUTHERN ALLIANCE FOR CLEAN ENERGY, COASTAL CONSERVATION LEAGUE, AND UPSTATE FOREVER ON 2013 INTEGRATED RESOURCE PLAN,** *via* email to the parties set forth below. In the absence of an email address, a hard copy was sent first class mail.

Jeffrey M. Nelson, Counsel
Office of Regulatory Staff'
1401 Main Street, Suite 900
Columbia, SC, 29201
Email: nsedwards@regstaff.sc.gov

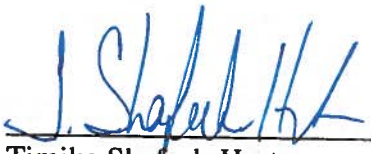
Shannon Bowyer Hudson, Counsel
Office of Regulatory Staff'
1401 Main Street, Suite 900
Columbia, SC, 29201
Email: shudson@regstaff.sc.gov

Michael K. Lavanga, Counsel
Brickfield, Burchette, Ritts & Stone, P.C.
1025 Thomas Jefferson Street, NW
Eight Floor, West Tower
Washington, DC 20007
Email: mkl@bbrslaw.com

Garrett A. Stone, Counsel
Brickfield, Burchette, Ritts & Stone, P.C.
1025 Thomas Jefferson Street, NW
Eight Floor, West Tower
Washington, DC 20007
Email: gas@bbrslaw.com

Robert R. Smith, II, Counsel
Moore & Van Allen, PLLC
100 North Tryon Street, Suite 4700
Charlotte, North Carolina 28202
Email: robsmith@mvalaw.com

J. Blanding Holman, IV, Counsel
Southern Environmental Law Center
43 Broad Street, Suite 300
Charleston, South Carolina 29401
Email: Bholman@selcsc.org



Timika Shafeek-Horton
Deputy General Counsel
Duke Energy Carolinas, LLC
550 South Tryon Street, DEC-45A
Charlotte, North Carolina 28202
Tel: 704.382.6373
timika.shafeek-horton@duke-energy.com